



The Population Educator

Teacher Training and Resources from **Population Connection**

Food In The Future



This year food has become a top news item. Issues from high food prices at home to dire shortages abroad are timely and make for great lessons in your classroom. Read ahead for teaching ideas. All of the listed activities are found on our *Teaching Population* CD and many are also available on our website at www.populationeducation.org.

What Am I Eating?

Most of our food today comes from three grains: corn, wheat, and rice.



Many countries are finding it harder to grow and buy the amount of food necessary to feed their populations.

Use the PopEd activity, **Earth: Apple of Our Eye**, featured on page three, to show your students how much land we currently use to grow our food and to discuss the connection between overpopulation and diets around the world.

Why Does Food Cost So Much?

Due to high oil costs, water shortages, and urban population growth, food prices have gone up. Also with the gap growing between rich and poor countries, food shortages have become a part of life for many people.

A great PopEd lesson for intermediate and secondary students to com-

pare and discuss population distribution, protein consumption, land use, energy consumption and relative wealth in major regions of the world is **Food For Thought**.

Rising Oil Prices

Since our food production is energy-intensive and food is transported for long distances across the world, the cost of oil affects the price of food. Recently the cost of corn, wheat, and rice has doubled leading to food riots in several countries like Mexico, Italy, and Egypt. Since the price of food is consistently rising with the rise in oil costs, countries are buying up large quantities of the staple grains which, unfortunately, increases the cost of food even more.

Classroom activities to demonstrate connections between resources and the population are **Everything Is Connected (grades 6-12)** and **More Or Less (grades 2-5)**. Teachers could also use the lessons **For The Common Good** and **Go Fish!** to show equal and unequal sharing of resources.

Water Shortages

Growing food for the world's population requires, on average, 70 percent of the world's fresh water. Not only is human population growing, but each person is eating more as they become richer. This rise in population and wealth

affects the demand for fresh water. For example, the growing affluence in several countries, especially China and India, has increased the demand for meat which raises the demand for water and crops. Several countries are dealing with a lack of fresh water and cannot produce enough food for their citizens, forcing these leaders to import most of their food.

Water, Water, Everywhere is a fantastic activity to show students at all grade levels the world's water resources.

Urban Sprawl

Worldwide, 50 percent of the population lives in urban areas. In developing countries, most population growth will be in cities. By mid-century Uganda is expected to grow from 29 to 106 million, Niger from 14 to 53 million, Afghanistan from 31 to 82 million, and Ethiopia from 79 to 147 million. With this steep rise in population, countries are finding it cheaper to import their food rather than use what little land they have left to grow crops.

Compare the rate of population growth in several countries with the online activity, **The Stork and The Grim Reaper**, or calculate how much space is needed for a large number of people with **Measuring a Million!**

Read on for recommended resources to learn about today's food issues.

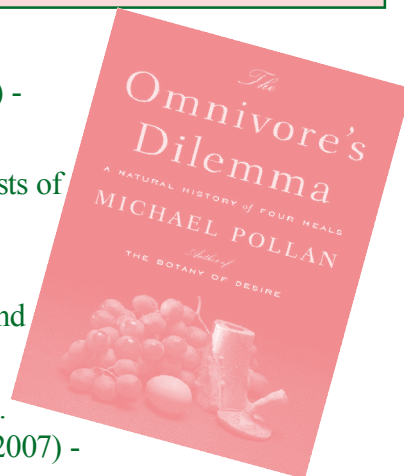
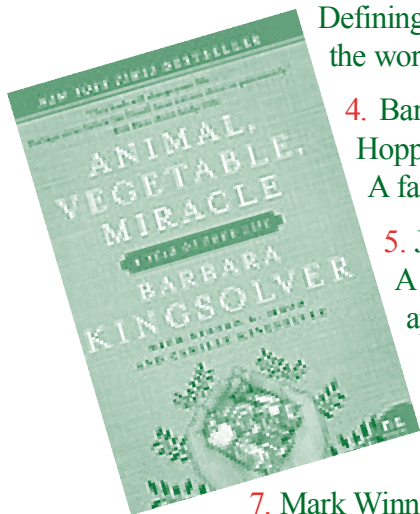




Resources

Sources: Further Reading on Food

1. Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (2006) - A thorough history of what tends to make up the American diet.
2. Lester Brown, *Who Will Feed China?* (1995) - A prediction on the rising import costs of grain in order to feed the growing population of China.
3. Peter Menzel and Faith D'Aluisio, *Hungry Planet: What The World Eats*. (2005) - Defining pictures and descriptions of weekly food diets around the world.
4. Barbara Kingsolver, Camille Kingsolver, and Steven L. Hopp, *Animal, Vegetable, Miracle: A Year of Food Life*. (2007) - A family journey of growing and buying food locally.
5. J.B. MacKinnon and Alisa Smith, *The 100 Mile Diet: A Year of Local Eating*. (2007) - A look into a couple's goal to only eat food grown within a 100 Mile radius of their apartment.
6. Raj Patel, *Stuffed and Starved: The Hidden Battle for the World Food System*. (2008) - Shows the struggle to feed the world with the free market system and possible solutions.
7. Mark Winne, *Closing the Food Gap: Resetting the Table in the Land of Plenty*. (2008) - The story of the American food gap expanding between the wealthy and the poor and the solutions that already exist.
8. Food and Agriculture Organization of the United Nations. www.fao.org - An international leader working to eliminate world hunger since 1945. Their website features an animated world hunger map, publications, and a food and agriculture database to find statistics for each country.
9. The Hunger Project, www.thp.org - A global organization committed to the sustainable end of world hunger in Africa, Asia, and Latin America. The website shows several strategies on how to empower women and men in developing areas of the world to live sustainably.



"Earth Matters: Studies for Our Global Future"



Keep an eye out for the new version of our secondary curriculum, *Earth Matters: Studies for Our Global Future*, 3rd edition to be released on CD-ROM early in 2009. Among the 16 units is one devoted to food issues. It includes readings for your students and, of course, classroom activities, including *Earth: The Apple of Our Eye*. Read on for a shortened version of this ever-popular activity.



Activities

Earth: Apple of Our Eye

Concept: Farmland is an essentially nonrenewable resource that we depend on for our food. As the population grows, food needs increase, but farmland is often diminished.

Subjects: Geography, environmental science, mathematics

Materials: An apple, a knife, and a paper towel

Procedure: Slice the apple according to the instructions, narrating as you go. Use the Q & A to encourage critical thinking in discussion of these facts.



Narrative

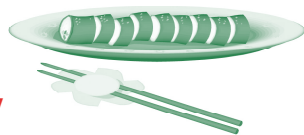
1. Hold the apple out so the class can see it. "This apple represents our planet."
2. Cut the apple into quarters. Hold out $\frac{3}{4}$ in one hand. Ask the class: "What do these $\frac{3}{4}$ represent?" (Water.)
3. Set the three "water" sections aside and hold out the remaining quarter. Ask the class, "What fraction of the apple remains?" ($\frac{1}{4}$) "So, this $\frac{1}{4}$ represents the total land surface."
4. Slice the land (the remaining $\frac{1}{4}$) in half, lengthwise. Hold out one of the pieces. Ask the class, "What fraction of the apple is this?" ($\frac{1}{8}$) "This $\frac{1}{8}$ represents the half of the Earth's surface that is inhospitable to people and to crops: the polar regions, deserts, swamps, and high or rocky mountains."
5. Set that $\frac{1}{8}$ aside and hold out the other. "This $\frac{1}{8}$ represents the other half of the Earth's surface. These are the areas on which people can live, but can't necessarily grow food."
6. Slice this $\frac{1}{8}$ crosswise into four equal pieces. Hold out $\frac{3}{32}$ in one hand. "These $\frac{3}{32}$ represent land on which people can live, but cannot grow food. Some of it never was arable because it's too rocky, wet, cold, steep, or has soil too poor to produce food. Some of it used to be arable but isn't any longer because it's been developed—turned into cities, suburbs, highways, etc., so it can no longer be farmed. Governments have earmarked other areas, such as parks, nature preserves, and other public lands to remain undeveloped forever."
7. Set $\frac{3}{32}$ aside and hold out $\frac{1}{32}$. "So, only $\frac{1}{32}$ of the Earth's surface has the potential to grow the food needed to feed all of the people on Earth."
8. Carefully peel the $\frac{1}{32}$ slice of Earth. Hold up the peel. "This tiny bit of peel represents the topsoil, the dark, nutrient-rich soil that holds moisture and feeds us by feeding our crops."

Discussion Questions:

1. What are the things humans do to arable land that make it more vulnerable to erosion?
2. How many people do you think the Earth can feed with its existing croplands? What would this depend on?
3. What conclusions can we draw about the relationship between a growing population and a shrinking amount of land capable of growing food for those people?
4. How can we preserve farmland?

The full text of "Earth: Apple of Our Eye," can be downloaded for free at www.populationeducation.org.

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Teacher Training and Resources from Population Connection



Workshops

Check Us Out: To see how hands-on population activities can fit into your classroom, attend a workshop! Our staff and volunteer trainers will conduct teacher trainings at the following conferences in the next month. Visit the website of the sponsoring organization to find out how to attend the conference. To schedule a teacher training workshop for your education methods class, conference or in-service day visit www.populationeducation.org or call (800) 767-1956.

10/10/2008	National Council on Economics Education	Biloxi, MS
10/10/2008	Wisconsin Early Childhood Education and Care Conference	Appleton, WI
10/10/2008	Iowa Association for the Education of Young Children	Des Moines, IA
10/10/2008	Michigan Alliance for Environmental and Outdoor Education	Clare, MI
10/11/2008	Kentucky Council of Teachers of Mathematics	Louisville, KY
10/11/2008	National Council on Geography Education	Dearborn, MI
10/11/2008	Washington State Council for the Social Studies	Edmonds, WA
10/13/2008	Colorado Association for Gifted and Talented	Denver, CO
10/15/2008	Georgia Council of Teachers of Mathematics	Rock Eagle, GA
10/16/2008	National Council of Teachers of Mathematics	Cleveland, OH
10/17/2008	Virginia Council for the Social Studies	Richmond, VA
10/17/2008	National Association of Biology Teachers	Memphis, TN
10/17/2008	Pennsylvania Council for the Social Studies	Gettysburg, PA
10/17/2008	Maryland Council of Teachers of Mathematics	Essex, MD
10/18/2008	Metro Detroit Science Teachers Association	Detroit, MI
10/23/2008	Valparaiso U. Autumn Harvest Middle School Conference	Valparaiso, IN
10/23/2008	Georgia Council for the Social Studies	Athens, GA
10/23/2008	South Carolina Science Council	Myrtle Beach, SC
10/23/2008	Iowa Science Teachers Section	Des Moines, IA
10/24/2008	Arizona Council for the Social Studies	Tempe, AZ
10/24/2008	Florida Council for the Social Studies	St. Petersburg, FL
10/24/2008	Texas Council for the Social Studies	Houston, TX
10/24/2008	New York State Middle School Association	Syracuse, NY
10/24/2008	Washington Association for the Education of Young Children	Tacoma, WA
10/24/2008	Texas Council for the Social Studies	Houston, TX
10/24/2008	New York State Middle School Association	Syracuse, NY
10/24/2008	Washington Association for the Education of Young Children	Tacoma, WA
10/24/2008	Florida Association of Science Teachers	Orlando, FL
10/25/2008	Texas Council for the Social Studies	San Antonio, TX
10/30/2008	North Carolina Council of Teachers of Mathematics	Greensboro, NC
10/31/2008	National Science Teachers Association	Charlotte, NC
10/31/2008	Massachusetts Association of Science Teachers	Boxborough, MA
11/1/2008	California Science Teachers Association	San Jose, CA
11/2/2008	Science Teachers Association of New York State	Rochester, NY

*Go to www.populationeducation.org for complete list of upcoming conferences.

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